

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Applicants' representative, Ms. Yun Choe, on June 3, 2010.

The application is amended as follows.

The specification is amended as follows. The descriptions of the drawings for Figs. 1, 6 and 9 on p. 7 are amended as indicated below.

Figure 1 is a structure of the dimer of chimeric recombinant binding domain(B)-functional group(F) fusion with double binding valency produced from pMH21, 22, 23 and pMHS22. The sequence shown is SEQ ID NO:15.

Figure 6 shows the structure of [B3(Fab)-Ext(15CL14FA13)-PE38]<sub>2</sub> produced from pCW1. The sequence shown is SEQ ID NO:36.

Figure 9 shows the structure of [B3(FabH1)-PE382 (=[B3(Fab)-Ext(1 CL 13FA7) -PE38]<sub>2</sub>). The sequence shown is SEQ ID NO:56.

Page 8, line 6 is amended as follows:

#### Detailed Description of the Invention Disclosure

The claims are amended as follows.

1-20. (canceled)

21. (currently amended) A recombinant fusion protein ~~monomer~~ comprising:

- (i) a binding domain that is for binding a target molecule, wherein the binding domain is an antibody that binds to a cell-surface antigen;
- (ii) a functional group domain for eliciting a desired effect on a [[the]] target molecule, wherein the functional group is an enzyme; and
- (iii) an extension peptide located between said binding domain and said functional group domain and containing one uncoupled cysteine residue capable of forming a disulfide bond for dimerization, wherein the extension peptide has a sequence represented by (S/A)KPSI(S/A)T(K/Q)AS(G<sub>4</sub>S)<sub>n</sub>GGPE, which is SEQ ID NO:13, wherein (n) is an integer ranging from 0 to 8, and wherein the amino acid at position 4, 15, 25 or 35 of SEQ ID NO:13 ~~one of amino acid at fourth, fifteenth, twenty-fifth or thirty-fifth amino acid residue position from said binding domain is substituted with~~ said cysteine residue capable of forming a disulfide bond.

22-30. (canceled)

31. (currently amended) A covalent homodimer formed between two recombinant fusion proteins ~~monomers~~ of claim 21 connected via a disulfide bond between the uncoupled cysteine residues.

32-35. (canceled)

36. (currently amended) The recombinant fusion protein ~~monomer~~ according to claim 21, wherein the binding domain is an F<sub>ab</sub>.

53. (currently amended) The recombinant fusion protein ~~monomer~~ of claim 21, wherein the enzyme is a protein containing a toxin-functional group.

54. (currently amended) The recombinant fusion protein ~~monomer~~ of claim 53, wherein the protein containing a toxin-functional group is *Pseudomonas* *Pseudomonas* exotoxin A.

55. (canceled)

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosanne Kosson whose telephone number is (571)272-2923. The examiner can normally be reached on Tues., Wed., Fri., 8:30-6:00, Mon., 8:30-2:00, Thurs. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang, can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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2010-06-03

/Karen Cochrane Carlson/  
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